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(54) Dispensing of edible products

(57) A non-aerosol food product dispensing system comprising a container containing a bulk supply of a composition comprising a water-in-oil emulsion incorporating 40-60% by weight of an edible oil, 5-10% by weight of a non-stick agent and 30-55% by weight of water, the composition being of sprayable viscosity and the container incorporating a dispensing mechanism actuation of which is operable to dispense a controlled quantity of the product from the container in the form of a spray, the constituents of the product being related to the duration of each operation of the dispensing mechanism in such manner that the volume of product dispensed on each actuation of the dispensing mechanism contains one calorie.

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DISPENSING OF EDIBLE PRODUCTS

This invention relates to the dispensing of edible products such as foodstuffs, cooking products and the like.

The calorie content of foodstuffs and products used in their cooking is an important element in dieting. Many diets require control of calorie intake and while this can be readily determined for measured quantities of specific food products, it can be materially affected by addition of calories derived from oils or the like in which food is cooked or from salad dressings or the like added before the food is consumed. It has been proposed to provide cooking oils in spray dispensers but this produces problems due to the relatively thick oily nature of cooking oils and in addition the calorie content of such products introduced by spraying cannot be readily determined. The term "calorie" is used herein in the manner usual in the food industry to refer to a unit of one kilocalorie.

According to one aspect of the present invention there is provided a dispensing container containing a bulk supply of an edible product and incorporating a dispensing mechanism enabling controlled quantities of the product to be dispensed from the container, the constituents of the product being related to the duration of each operation of the dispensing mechanism in such manner that the volume of product dispensed as each actuation of the dispensing mechanism contains a known number of calories.

Preferably the container is adapted to dispense a quantity of the product containing one calorie on each actuation of the dispensing mechanism.

Preferably also the product is dispensed from the container by spraying. The dispensing mechanism is preferably a non-aerosol pump-operated mechanism.

The invention also provides a method of dispensing an edible product

from a dispensing container in which each dispensing operation is arranged to deliver a quantity of the product containing a known number of calories.

Preferably the product is dispensed by spraying. The product may comprise a non-stick cooking composition, a salad dressing, a flavouring or other product.

A preferred cooking composition comprises a water-in-oil emulsion incorporating an edible oil, a non-stick agent and water.

In the case of a cooking oil, the composition preferably comprises 40-70% by weight of edible oil, 5-10% by weight of non-stick agent and 30-55% by weight of water mixed together to form an emulsion of sprayable viscosity. Preferably the non-stick agent is lecithin.

Advantageously the composition also includes a preservative, flavouring and/or colouring. Suitable preservatives include grain alcohol or iso-propyl alcohol. The preservative may be present in an amount of up to 10% and preferably about 5% by volume of the composition.

The composition is arranged to be dispensed from a non-aerosol container incorporating a spray nozzle adapted on each operation to dispense a known volume of the product. The composition of the product is adjusted in relation to the volume dispensed at each actuation of the mechanism in such a way that the calorie content of the dispensed volume is known and is preferably one calorie.

In the case of a dispenser delivering 0.2ml at each operation, the composition of the cooking oil product may advantageously comprise:-

	% wt.
vegetable oil	45
purified soya lecithin	5

water	44
grain alcohol (preservative)	5
flavouring and colouring	1

The product may be used as a quick release coating or as a shallow fry cooking oil. The lecithin imparts the necessary non-stick properties to the product and the water controls viscosity so as to render the product suitable for spray dispensing. The oil content is selected relative to the other ingredients such that 0.2ml of the composition contains one calorie. The user can thus control precisely the additional calories introduced by use of the cooking oil product by counting the number of operations of the dispenser, thereby enabling both rapid dispensing of the product and precise control of the number of calories contained in the dispensed quantity.

The dispensing mechanism preferably comprises a finger operated pump mechanism ~~incorporating a release valve~~ operable to dispense a fixed volume of the contents of the container at each operation. In a typical example the container has a volume of 250ml and dispenses 0.2ml at each operation. The dispensing mechanism is preferably arranged to produce a cone-shaped spray formation comprising a mist of small particles up to about 0.3gm in weight.

Various modifications may be made without departing from the invention. For example the container may be arranged to dispense any desired number of calories of product by appropriate control of the volume dispensed and the proportions of constituents incorporated in the formulation. In general however it will be preferred to dispense one calorie at each operation of the dispensing mechanism as this contributes to ease of operation since the number of actuations of the dispenser is equal to the number of calories in the dispensed product.

The composition of the cooking product may also be varied. For example, alternative vegetable-based or synthetic oils may be employed and modified lecithins or other non-stick agents may be incorporated. While the

invention has been described primarily with reference to dispensing of cooking oils, it may equally be applied to dispensing of salad dressings or other food products by calorie content rather than by time or volume. Moreover while reference has been made herein to non-aerosol dispensing mechanisms, the dispensing mechanism may alternatively be an aerosol dispenser.

Claims:-

1. A dispensing container containing a bulk supply of an edible product and incorporating a dispensing mechanism enabling controlled quantities of the product to be dispensed from the container, the constituents of the product being related to the operation of the dispensing mechanism in such manner that the volume of product dispensed on each actuation of the dispensing mechanism contains a known number of calories.

2. A container according to claim 1 adapted to dispense a quantity of the product containing one calorie on each actuation of the dispensing mechanism.

3. A container according to claim 1 or 2 wherein the product is dispensed from the container by spraying.

4. A container according to any of claims 1 to 3 wherein the product comprises a water-in-oil emulsion incorporating 40-70% by weight of an edible oil, 5-10% by weight of a non-stick agent and 30-55% by weight of water, the product being of sprayable viscosity.

5. A container according to claim 4 in which the product comprises a cooking oil.

6. A container according to claim 4 in which the product comprises a salad dressing.

7. A container according to any of claims 4 to 6 wherein said non-stick agent is lecithin.

8. A container according to any of claims 4 to 7 in which the product includes a preservative.

9. A container according to claim 8 wherein said preservative is present in an amount up to 10% by volume of the product.

10. A container according to claim 9 wherein said preservative is present in an amount of about 5% by volume of the product.

11. A container according to any of claims 8 to 10 wherein said preservative is selected from grain alcohol and isopropyl alcohol.

12. A dispensing container containing an edible product substantially as hereinbefore described.

13. A non-aerosol food product dispensing system comprising a container containing a bulk supply of a product comprising a water-in-oil emulsion incorporating 40-70% by weight of an edible oil, 5-10% by weight of a non-stick agent and 30-55% by weight of water, the product being of sprayable viscosity and the container incorporating a dispensing mechanism actuation of which is operable to dispense a controlled quantity of the product from the container in the form of a spray, the constituents of the product being related to the operation of the dispensing mechanism in such manner that the volume of product dispensed on each actuation of the dispensing mechanism contains one calorie.

14. A method of dispensing an edible product from a dispensing container in which each dispensing operation is arranged to deliver a quantity of the product containing a predetermined number of calories.

15. A method according to claim 14 wherein each dispensing operation is arranged to deliver a quantity of the product containing one calorie.

16. A method according to claim 14 or 15 wherein the product is dispensed by spraying.

17. A method according to any of claims 14 to 16 wherein the product comprises a product according to any of claims 4 to 11.

18. A method of dispensing an edible product substantially as hereinbefore described.

19. Any novel subject matter or combination including novel subject matter herein disclosed, whether or not within the scope of or relating to the same invention as any of the preceding claims.

The Patent Office

8

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Claims searched: 1-18 **Date of search:** 25 March 1997

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Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

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Int Cl (Ed.6): B05B 11/00; B65D 83/04, 83/14; B67D 1/00, 1/12; F04B 9/14; G01F 11/00

Other: ONLINE: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 2,133,385 A	(GAMBETTA)	1,14
Y	GB 2,053,376	(Ceskoslovenska Akademie Véd) See figure 1	1,2,3,4,7, 8,13,14, 15,16,17
Y	US 5,431,719	(Creative Products) See whole doc	1,2,3,4,7, 8,13,14, 15,16,17
Y	US 4,871,092	(Pfeiffer) See column 2 lines 52 to 65	1,2,3,4,7, 8,13,14, 15,16,17
X	US 4,492,316	(BOOTS) See whole doc	1,14

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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